



App. No. 10/762,143
Amendment dated Aug. 10, 2005
Reply to Office Action of May 10, 2005

Amendments to the Specification:

Please replace paragraph [0001] with the following amended paragraph:

[0001] This application is related to the application of John F. Casey, et al. entitled "Methods for Making Microwave Circuits" (~~Docket No. 10020707-1 Serial No. 10/600,143, filed June 19, 2003~~), the application of John F. Casey, et al. entitled "Methods for Forming a Conductor on a Dielectric" (~~Docket No. 10030748-1 10/601,042, filed June 19, 2003~~), and the application of John F. Casey, et al. entitled "Methods for Depositing a Thickfilm Dielectric on a Substrate" (~~Docket No. 10030747-110/600,600, filed June 19, 2003~~). These applications are hereby incorporated by reference for all that they disclose.

Please replace paragraph [0020] with the following amended paragraph:

[0020] To provide better shielding for the conductors 204, 206, the FIG. 3 cross-section may be modified as shown in FIG. 4. In FIG. 4, a plurality of conductive vias 400, 402, 404 are formed in the layer of dielectric 208. The conductive vias [[400-404]]~~400, 402, 404~~ couple the first and second ground shields 214, 216 at points about the plurality of conductors 204, 206. FIG. 5 illustrates an exemplary plan view of the layer of dielectric 208 shown in FIG. 4, after 1) conductive vias [[400-404, 500-516]]~~400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516~~ have been formed therein, and 2) conductors 204, 206 have been deposited thereon.

Please replace paragraph [0021] with the following amended paragraph:

[0021] FIG. 6 illustrates an alternate plan view of the layer of dielectric 208 shown in FIG. 4. In FIG. 6, a plurality of ground pads [[602-624]]~~602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624~~ are deposited on the layer of dielectric 208. The

ground pads [[602-624]]602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624 may be placed in contact with the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516 to provide a better means for coupling the second ground shield 216 (see FIG. 4) to the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516 (see FIGS. 4 & 6).

Please replace paragraph [0022] with the following amended paragraph:

[0022] FIG. 7 illustrates another alternate plan view of the layer of dielectric 208 shown in FIG. 4. In FIG. 7, a plurality of ground traces 700, 704, 704 are deposited on the layer of dielectric 208. Similarly to the ground pads [[600-604]]600, 602, 604, the ground traces [[700-704]]700, 702, 704 may be placed in contact with the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516 to provide a better means for coupling the second ground shield 216 to the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516. Ground traces [[700-704]]700, 702, 704 may be advantageous to ground pads [[602-624]]602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624 in that they can route signal grounds along the entire length of a conductor 204, 206.

Please replace paragraph [0023] with the following amended paragraph:

[0023] Although FIGS. 2-4 show the dielectric mounds 210, 212 being substantially adjacent one another (i.e., with the dielectric mounds 210, 212 touching, or close to touching), the dielectric mounds 210, 212 need not be this close to one another. However, when the dielectric mounds 210, 212 are separated from one another by a distance that is less than a width of one of the dielectric mounds 210, 212, the quasi-coax transmission lines 200, 202 shown in FIG. 2 may be formed at a greater density than the quasi-coax transmission lines 100, 102 shown in FIG. 1. At times, it may be advantageous to provide a small amount of space between the

dielectric mounds 210, 212 (e.g., to enable the second ground shield 216 to better contact ground traces [[700-704]]700, 702, 704 formed on the layer of dielectric 208; see FIG. 8).

Please replace paragraph [0024] with the following amended paragraph:

[0024] By way of example, the layer of dielectric 208 and dielectric mounds 210, 212 shown in FIGS. 2 & 3 may be glass or ceramic dielectrics. In one embodiment, the dielectrics are KQ CL-90-7858 dielectrics (thickfilm glass dielectrics) available from Heraeus Cermalloy (24 Union Hill Road, West Conshohocken, Pennsylvania, USA). The substrate 218 may be a 40 mil lapped alumina ceramic substrate with a gold ground shield 214 deposited thereon (see FIG. 3). Alternately, the substrate 218 may have a glass, ceramic, polymer, metallic or other composition. If metallic, the substrate 218 itself may serve as the first ground shield 214. The conductors 204, 206 and ground shields 214, 216 (FIG. 3) and, if provided, ground pads [[602-624]]602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624 (FIG. 6) and ground traces [[700-704]]700, 702, 704 (FIG. 7), may be deposited by printing a thickfilm conductive paste, such as [[DuPont®]]DUPONT® QG150, through an appropriate stencil or screen.

Please replace paragraph [0025] with the following amended paragraph:

[0025] FIG. 9 illustrates an exemplary method 900 for forming the shielded transmission lines 200, 202 shown in FIGS. 2-4. To begin, a plurality of conductors 204, 206 are deposited 902 on a layer of dielectric 208 that is positioned above a first ground shield 214. A mound of dielectric 210, 212 is then deposited 904 over each conductor 204, 206. Thereafter, a second ground shield 216 is deposited 906 over the mounds of dielectric 210, 212. Optionally, a plurality of conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516 may be

formed 908 in the layer of dielectric 208 prior to depositing the mounds of dielectric 210, 212 on the layer (and possibly, prior to depositing the conductors 204, 206). As shown in FIG. 5, the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516 may contact the first ground shield 214, and may be formed at points about the plurality of conductors 204, 206. If the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516 are formed, the mounds of dielectric 210, 212 and second ground shield 216 are preferably deposited (e.g., sized and spaced) to ensure contact between the second ground shield 216 and the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516. Also optionally, ground pads [[600-624]]602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624 and/or ground traces [[700-704]]700, 702, 704 may be deposited 910 on the layer of dielectric 208 so as to contact the conductive vias [[400-404, 500-516]]400, 402, 404, 500, 502, 504, 506, 508, 510, 512, 514, 516.